TITLE: A METHOD FOR ILLUMINATING AN AQUARIUM
AND APPARATUS THEREFOR

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TECHNICAL FIELD

The present invention pertains generally to aquariums, and more particularly to a method and apparatus for illuminating the aquarium using an underwater figurine having an embedded light source.

BACKGROUND OF THE INVENTION

Aquariums are well known in the art. These devices comprise water filled tanks having transparent sides for viewing. The aquariums typically contain fish, aquatic plants, and decorative materials such as colored rocks, nautical artifacts, and the like. Aquariums range from small home units to large and elaborate commercial systems.

Lighting can enhance the appearance of the aquarium. Such lighting typically comes from a light which is positioned in a hood which rests on top of the aquarium.

BRIEF SUMMARY OF THE INVENTION

The present invention is directed to a method and apparatus for illuminating an aquarium and greatly enhancing its beauty. In contrast to prior art lighting systems, the present invention employ a lighted decorative figurine which is placed in the water of the aquarium. The figurine may take any desired shape such as a sea shell, treasure chest, shipwreck, diver, rock, castle, seahorse, and the like. The figurine has an embedded light source the light of which is diffused by the figurine so that the figurine shines. If the figurine is translucent, then the housing of the figurine diffuses the light from the light source. If the figurine is transparent, a coating placed on the external surface of the figurine diffuses the light from the light source. The light from the figurine transforms the dull colors of the aquarium into a vivid colored display. The light from the figurines is particularly beautiful in a darkened environment, such as with the aquarium hood light and room lights are turned off. In a preferred embodiment, the light source comprises light emitting diodes which consume very little power and have a life of up to 100,000 hours.

In accordance with a preferred embodiment of the invention, a method for illuminating an aquarium, comprises:

(a) providing an aquarium having water;
(b) providing a figurine, including:
    -a housing;
    -the housing being at least one of transparent and translucent;
    -a selectively energizable light source disposed within the housing;
(c) placing the figurine underwater in the aquarium;
(d) energizing the light source so that the figurine shines.

Other aspects of the present invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation view of a lighted figurine for an aquarium in accordance with the present invention;

FIG. 2 is an enlarged side elevation view of a light source;

FIG. 3 is an enlarged top plan view of the light source;

FIG. 4 is an enlarged top plan view of a second embodiment of six light emitting diodes;

FIG. 5 is a view along the line 5-5 of FIG. 4;

FIG. 6 is an enlarged side elevation view of a second embodiment of the light emitting diodes;

FIG. 7 is an enlarged top plan view of FIG. 6; and,

FIG. 8 is a reduced top plan view of an aquarium containing the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring initially to FIG. 1, there is illustrated a side elevation view of a lighted figurine for an aquarium in accordance with the present invention, generally designated as 20. In the shown embodiment, figurine 20 is shaped like a sea shell, however other shapes are also possible. Figurine 20 includes a housing 22 having a external surface 24. Housing 22 is at least one of transparent and translucent. For example, housing 22 can be fabricated from a clear polymer or glass, or could be fabricated from a translucent polymer or glass. In an embodiment of the invention, housing 22 is solid rather than hollow. A selectively energizable light source 26 is embedded within housing 22, so that figurine 20 may be placed underwater in an aquarium 500 (refer also to FIG. 9), and when light source 26 is energized, figurine 20 will shine. In an embodiment of the invention, light source 26 is placed near the bottom of figurine 20 and directed upward so that the entire figurine 20 will shine. In a preferred embodiment of the invention, light source 26 comprises at least one light emitting diode (LED) 25. The light emitted by light emitting diode 25 can be one of a plurality of colors. For example a red light emitting diode 25 will emit a red color, a blue light emitting diode 25 a blue color, etc. Other available color light emitting diodes 25 include green, purple, orange, yellow, etc. Light emitting diodes 25 are also available which emit multiple colors on a time sequenced basis. Housing 22 also has a base 23. Base 23 can be placed on the gravel or sand which typically covers the bottom of the aquarium 500, or at any other convenient location within the aquarium 500. In the shown embodiment, light source 26 is disposed in base 23.

In an embodiment of the invention, if housing 22 is transparent, then external surface 24 has a translucent coating 28 such as paint. Translucent coating 28 diffuses the light from light source 26 so that the external surface 24 of figurine 20 shines. In another embodiment of the invention, translucent coating 28 is purposely made an uneven thickness so that external surface 24 of figurine 20 shines unevenly. That is, bright and less bright spots will appear on external surface 24 of figurine 20. Leads 27 connect light source 26 to a power source such as 6 volts DC which is located outside of aquarium 500.

FIGs. 2 and 3 are enlarged side elevation and top plan views of an embodiment of light source 26. In this embodiment, light source 26 comprises six light emitting diodes 25 disposed in a circular arrangement with each light emitting diode having a direction of radiation 29. The six light emitting diodes increase the intensity of light source 26 and thereby cause figurine 20 to shine more brightly. The multiple light emitting diodes will also light a larger figurine 20. Also, different color light emitting diodes 25 may utilized to obtain a blending of colors on the external surface 24 of figurine 20.

The six light emitting diodes 25 are mounted in a circular arrangement on a circular printed circuit board 30 having a central axis 21. The direction of radiation 29 of each light emitting diode 25 is substantially parallel to the direction of radiation of every other light emitting diode 25 and also substantially parallel to central axis 21. In the shown embodiment, each light emitting diode 25 has a radiation pattern of about 10°.

FIG. 4 is an enlarged top plan view of a second embodiment of six light emitting diodes 25, and FIG. 5 is a view along the line 5-5 of FIG. 4. In this embodiment the six light emitting diodes 25 are also disposed in a circular arrangement on a printed circuit board 30 having a central axis 21. Each of the six light emitting diodes 25 is oriented so that its direction of radiation 29 is angled away from central axis 21 of printed circuit board 30. That is, light emitting diodes 25 are bent outward at an angle from central axis 21. A bend of about 45° has been found useful. In this fashion the light from light emitting diodes 25 is spread over a greater portion of external surface 24 of figurine 20.

FIGs. 6 and 7 are enlarged side elevation and top plan views respectively of a second embodiment of light emitting diodes 25. In this embodiment the light emitting diodes 25 each consist of a rectangular body which radiates light in a 140° pattern, and therefore more evenly spreads light on external surface 24.

FIG89 is a reduced top plan view of an aquarium 500 containing the present invention.

In terms of use, a method for illuminating an aquarium, includes:

(a) providing an aquarium 500 having water (refer to FIG. 8);

(b) providing a figurine 20, including:

-a housing 22;

-housing 22 being at least one of transparent and translucent;

-a selectively energizable light source 26 disposed within housing 22;

(c) placing figurine 20 underwater in aquarium 500;

(d) energizing light source 26 so that figurine 20 shines.

The method further including: (refer to FIG. 8)

in step (a), an object 502 such as a rock formation disposed within aquarium 500;

in step (b), providing two figurines 20 (desiganted A and B) , wherein light source 26 of one figurine A emits light of a fist color and light source 26 of the other figurine B emits light of a second color different from the first color; and,

in step (c), placing the two figurines so that light from both figurines impinges upon object 502, thereby resulting in a blending of light colors.

The method further including: (refer to FIG. 8)

in step (a), another object 504 having a cavity 506 disposed within aquarium 500; and,

in step (c), placing figurine 20 so that light from light source 26 illuminates cavity 506.

The method further including:

in step (d), ensuring that aquarium 500 resides in a darkened environment. It is noted that the present invention is particularly effective when the aquarium hood light and room lights are turned off. In this fashion the light emanating from figurine 20 and reflected from objects within the aquarium 500 presents a pleasing and colorful display.

The method further including:

in step (b), light source 26 being a light emitting diode 25 having a direction of radiation 29.

The method further including:

six light emitting diodes 25 disposed in a circular arrangement, wherein the direction of radiation 29 of each light emitting diode 25 is substantially parallel to the direction of radiation 29 of every other light emitting diode 25.

The method further including:

six light emitting diodes 25 disposed in a circular arrangement on a printed circuit board 30 having a central axis 21; and,

each of the light emitting diodes 25 oriented so that the direction of radiation 29 is angled away from central axis 21 of printed circuit board 30.

The method further including:

in step (b), housing 22 being transparent and having an external surface 24; and,

external surface 22 of housing 22 having a translucent coating 28.

The method further including:

translucent coating 28 being of uneven thickness so that external surface 24 of figurine 20 shines unevenly.

The preferred embodiments of the invention described herein are exemplary and numerous modifications, variations, and rearrangements can be readily envisioned to achieve an equivalent result, all of which are intended to be embraced within the scope of the appended claims.